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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
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ABRAMOWITZ, HOWARD E

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 04/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/511,315	<b>Applicant(s)</b> MUND ET AL.	
	<b>Examiner</b> Howard E. Abramowitz	<b>Art Unit</b> 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 February 2006.
- 2a) ☒ This action is FINAL.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 and 33-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22, 33-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

Applicant's amendments filed 2/16/06, have been fully considered and reviewed by the examiner. The examiner notes that claims 23-32 have been canceled, claims 33-37 have been added. Currently claims 1-22 and 33-37 are pending in this application.

### ***Response to Arguments***

Applicant's arguments filed 2/16/06 have been fully considered but they are not persuasive.

The applicant has argued that Huck and Hunt do not teach an evaporation-coating glass because the glasses do not have an at least binary system of materials.

The examiner argues that while binary system of materials could be taken to mean a binary system of glasses where two or more glass substances are present such as  $\text{Al}_2\text{O}_3$  and  $\text{MgO}$ . It could also be taken to mean a glass comprising two or more materials such as silicon oxide which contains 2 materials silicon and oxygen. In the prior office action the latter definition was applied in describing  $\text{Ga}_2\text{O}_3$  of Hunt. As this is the only definition of the glass provided by the specification, it is clear that the specification is indefinite as to the meaning of a binary system of materials. The examiner is of the stance that the latter definition applies and therefore the art rejections over Hunt and Huck are maintained as both teach a binary system of materials. Also of note is that Hunt teaches that impurities are present in the glass film these impurities

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would also read on the first definition of binary system of materials as well (column 3 lines 30-34).

The applicant argues against the Wienand reference saying that it does not teach evaporation coating but rather teaches screen printing and points to paragraphs 48-54 as evidence.

The examiner argues that while screen printing is disclosed in those paragraphs numerous other evaporation coating methods are also disclosed in Wienand see paragraphs 16 and 26 where the evaporative deposition methods are disclosed as the preferred methods of depositing the passivation layer.

Also of note is the use of the word hermetic in claim 3, hermetic by definition requires that the surface be completely sealed. Applying a patterned layer onto a metal structure would not completely seal the surface as portions would be exposed and therefore would not be a hermetic coating.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent

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granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-6, 8-11, 14, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Huck.

Referring to claim 1, Huck discloses a process for producing a coated substrate having at least one metallic surface, comprising: depositing an evaporation-coating glass in structured form at least on the at least one metallic surface (columns 3-4 lines 63-5).

Referring to claim 3, Huck discloses a process for producing a coated substrate having at least one metallic surface, comprising: producing at least one negatively structured first coating on the metallic surface (columns 3-4 lines 63-5); depositing a hermetic evaporation coating glass layer on the first coating (column 2 lines 24-25), the coating is hermetic because it prevents moisture; and at least partially removing the at least one negatively structured first coating and the hermetic evaporation coating glass layer thereon (columns 3-4 lines 63-5).

Referring to claim 4, Huck discloses patterning the substrate with a photoresist or using a mask doing so involves uncovering portions of the metallic substrate that are to be coated (columns 3-4 lines 63-5).

Referring to claim 5, Huck discloses coating with a photoresist (columns 3-4 lines 63-5).

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Referring to claim 6, Huck discloses using a mask or resist to protect regions which are not to be coated the mask or resist is then removed to make those regions free for contacting (columns 3-4 lines 63-5).

Referring to claim 8, Huck discloses the step of brushing the surface after the deposition of the glass layer. Brushing removes dirt particles from the surface, which partially uncovers the negatively structured first coating (column 2 lines 30-67).

Referring to claim 9, the removal of dirt particles from the surface would act to remove bumps and imperfections in the coating which would effectively planarize the surface (column 2 lines 30-67).

Referring to claim 10, using a brush to clean the surface would be a method of polishing the surface as a brush is used in other conventional polishing methods such as polishing shoes.

Referring to claim 11, Huck discloses that a mask can be used to perform the evaporation coating (columns 3-4 lines 63-5).

Referring to claim 14, Huck discloses that the thickness of the film can be up to 2 micrometers (column 4 lines 39-40).

Referring to claims 19 and 20, Huck discloses etching of the glass coating following the deposition (column 3 lines 1-14).

Claims 1-6, 11, 14, 17 and 18 33-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Hunt et al. (US Patent No. 5,451,548).

Referring to claim 1, Hunt et al. discloses a process for producing a coated substrate having at least one metallic surface, comprising: depositing an evaporation-coating glass in structured form at least on the at least one metallic surface (column 2 lines 30-42).  $\text{Ga}_2\text{O}_3$  is taken to be the glass layer as it is a binary system of materials which can be deposited by evaporation coating which is the definition of a glass as described in the specification (page 5).

Referring to claim 2, the evaporation coating glass was coated by electron beam evaporation (column 2 lines 30-42).

Referring to claim 3, Hunt et al. discloses a process for producing a coated substrate having at least one metallic surface, comprising: producing at least one negatively structured first coating on the metallic surface (column 2 lines 58-59); depositing a hermetic evaporation coating glass layer on the first coating (column 2 lines 30-42), the coating is hermetic because it prevents oxidation thus is air tight (column 1 lines 14-15); and at least partially removing the at least one negatively structured first coating and the hermetic evaporation coating glass layer thereon (column 2 lines 58-59). While it is not explicitly stated it is inherent that structuring a substrate with a photoresist or providing a mask over the substrate involves removing the mask or the photoresist layer after deposition.

Referring to claim 4, Hunt et al. discloses patterning the substrate with a photoresist or using a mask doing so involves uncovering portions of the metallic substrate that are to be coated (column 2 lines 58-59).

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Referring to claim 5, Hunt et al. discloses coating with a photoresist (column 2 lines 58-59).

Referring to claim 6, Hunt et al. discloses using a patterned photoresist doing so inherently means that the coated resist sections of the hermetic coating will be removed (column 2 lines 58-59).

Referring to claim 11, Hunt et al. discloses the deposition can be performed through a mask (column 2 lines 58-59).

Referring to claim 14, Hunt et al. discloses the thickness of the films 500-4000 angstroms (column 4 line 14).

Referring to claim 17, Hunt et al. discloses the metallic substrate is heated during deposition to between 40 and 370 °C (column 3 lines 7 and 8).

Referring to claim 18, Hunt et al. discloses that the pressure in the chamber was  $1 \times 10^{-10}$  torr.

Referring to claims 33 and 34, Hunt et al. discloses that the metal substrate is a solid metal substrate see figure 1. Thus the rejections of claims 1 and 3 apply for these claims.

Referring to claim 35 see claim 4.

Referring to claim 36, see claim 6.

Claims 1, 3-6, 11-15 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Wienand et al. (US Patent Application Publication 2002/0084885).



Referring to claim 1, Wienand et al. discloses a process for producing a coated substrate having at least one metallic surface, comprising: depositing an evaporation-coating glass in structured form at least on the at least one metallic surface (paragraph 26, paragraphs 49-54).

Referring to claim 3, Wienand et al. discloses a process for producing a coated substrate having at least one metallic surface, comprising: producing at least one negatively structured first coating on the metallic surface (paragraph 26, paragraphs 49-54); depositing a hermetic evaporation coating glass layer on the first coating (paragraph 13); and at least partially removing the at least one negatively structured first coating and the hermetic evaporation coating glass layer thereon (paragraphs 49-54). While it is not explicitly stated it is inherent that structuring a substrate with a resist mask over the substrate involves removing the resist mask layer after deposition as is shown by the lack of a mask being present in figure 1.

Referring to claim 4, Wienand et al. discloses patterning the substrate with a resist mask doing so involves uncovering portions of the metallic substrate that are to be coated (paragraph 50).

Referring to claim 5, Wienand et al. discloses coating with a resist (paragraph 50).

Referring to claim 6, Wienand et al. discloses using a resist mask doing so inherently means that the coated resist sections of the hermetic coating will be removed (paragraph 50, figure 1).

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Referring to claim 11, Wienand et al. discloses the deposition can be performed through a mask (paragraph 50).

Referring to claim 12, Wienand et al. discloses that the coating can consist of two layers (paragraph 24).

Referring to claim 13, Wienand et al. discloses that the two layers are different compositions (table 2).

Referring to claim 14, Wienand et al. discloses the thickness of the films 0.2-10  $\mu\text{m}$  (paragraph 45).

Referring to claim 15, the hermetic coating can be 2 different layers which would have a different composition (table 2).

Referring to claim 22, Wienand et al. discloses that the layer can be applied using PIAD (paragraph 26).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

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were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wienand et al..

Wienand et al. discloses all of the features of this claim as discussed above except it does not disclose evaporating coating material from at least two sources. It does teach however that evaporation can be performed of composites of more than one oxide as shown in table 2. To deposit more than one oxide at the same time it would be obvious to one of ordinary skill in the art to use more than one source for the coating material as the materials have different material properties and would need to be heated to different temperatures for evaporation.

Claims 7 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt et al. in view of the *Handbook of thin film technology* pages 7-42 to 7-43. Hunt et al. teaches all of the features of claims 7 and 37 as discussed above except it does not teach that the glass film should be thinner than the photoresist film. However, the *Handbook of thin film technology* teaches that photoresist films are typically on the thickness range of 0.5 to 5 micrometers. The films of Hunt et al. were of the thickness

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of 500-4000 angstroms. It therefore would have been obvious to one of ordinary skill in the art that the glass films of Hunt et al. would be thinner than the photoresist films as suggested by the *Handbook of thin film technology* and would have a reasonable expectation of successfully patterning the metal substrate with the desired photoresist-glass layered structure.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huck in view of Calhoun (US Patent No. 4,964,945).

Huck teaches all of the features of claim 21 as discussed above including the desire to etch the surface after the deposition of the glass layer (column 2 lines 30-67). It does not teach to move the substrate during the evaporation-coating process. However, Calhoun et al. teaches that during evaporative coating such as e-beam evaporation it is desirable to continuously move the substrate during deposition as this deposits the material substantially on the surfaces parallel to the plane of the substrate surface and allows for the further step of etching the mask material after deposition (column 2 lines 30-45). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Huck to move the substrate during deposition as suggested by Calhoun with an expectation that it will allow for etching of the mask material after deposition.

### **Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

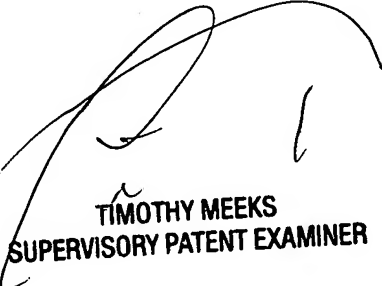
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard E. Abramowitz whose telephone number is 571-272-8557. The examiner can normally be reached on monday-friday 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*HEA*  
HEA

  
TIMOTHY MEEKS  
SUPERVISORY PATENT EXAMINER